14: Frikel E-5 (1957) 1959 SQ13 Mundurucu SQ13

The Agriculture of the Mundurucu Indians
/Agricultura dos Indios Mundurukú//

By Protásio Frikel

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/Title Page/

14: Frikel--1 E-5 (1957) 1959 SQ13 Mundurucu SQ13

114

The Agriculture of the Mundurukú Indians *

*Most of the data that follow were gathered in 1957, in the course of a two-month stay among the Indians of the Franciscan mission of Cururú and vicinity. My principal informants were the Mundurukú Tomé, Cirilo, and Antônia. But I am also indebted to the mission fathers for much valuable data, for which I am grateful.

115

Protásio Frikel

Goeldi Museum

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I. Present-day knowledge of Mundurukú agriculture
II. Garden methods
III. Social factors
IV. Native terminology

I. Present-day knowledge of Mundurukú agriculture

241
175

What we know of Mundurukú agriculture is little, and most of it is based on the reports of nineteenth-century travelers. Already in those days the Mundurukú were pictured as a people who possessed a certain level of primitive agriculture. Those /travelers/ speak of [131] the Mundurukú as living on the margins of the Tapajós River and as already being in the first stage of acculturation to the environment of the time. They deal with the subject of "agriculture" as if it were an ancient culture trait among these Indians. This may indeed be the truth, for we cannot assert the contrary, /2/ although certain

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*241 [174] mythological and legendary traditions of the Mundurukú lead us to believe that they were not always a people given to the cultivation of plants. This, however, /applies to/ a remote past, which is no longer verifiable nowadays. In historic times, ever since they came *241 [175] into contact with civilized people and came to be known, they have been observed to cultivate gardens and to make manioc flour. It is [269] [721] true that the Mundurukú gained greater fame as warriors, for whenever the opportunity arose they did not hesitate to attack even cities such as Santarém (1780) and Gurupá (1784). (1)

1. Horton, 1948: 272-273.

As colonial rule was strengthened, however, and warring activities decreased, these Indians seem to have tended increasingly toward a more stable way of life and a more extensive and more diversified agriculture. I believe that available texts must be interpreted in this light. Even though they are not all in agreement, the traveling writers provide glimpses of a development in the cultivation methods of these Indians.

*24 [361] Martius, speaking in a general way of the Tupi tribes of the upper Tapajós, including the Mundurukú, regards them, precisely because of this incipient agriculture, as seminomadic. He says: "They practice a primitive agriculture and, therefore, they are not nomads in the strict sense of the term; their villages, however, do not remain immutably in the same place." (2) Monteiro Baena

2. "Sie treiben einen nothduerftigen Landbau, sind daher im strengeren Sinne keine Nomaden; doch bleiben ihre Niederlassungen nicht unveraenderlich an derselben Stelle." Martius, 1867: 201.

[175] testifies that at first, in the years following the pacification of the Mundurukú, their propensity for agriculture was not very great or very strong. Referring to the "Mundrucús" forcefully brought to and

/2 cont./

*24.1 resettled on the Maué-assu River /Maués-Guassú?/ and in the former
[195] mission of Vila Nova da Rainha in 1800 and 1803 respectively, he says that they "... showed little inclination to prepare gardens for manioc flour." (3)

3. Monteiro Baena, 1843: 283.

Later, Martius, in his more extensive report on the Mundurukú, does not mention qualitative cultivation but refers merely to the quantitative production of the gardens, i.e., he alludes to the large volume of manioc flour produced by the Tapajós Mundurukú, but /3/ he is not familiar with, or at least does not mention, the plant varieties they cultivate, although they undoubtedly raised more than the cotton and manioc roots he mentions. He attributes the quantita-
[649] tive development to the power and warring strength of the tribe, which thus protected its gardens against the attacks, thefts, and raids frequently carried out by other tribes, especially the Mura. Martius speaks as follows: "In the arts of agriculture, the Mundurucú merely appear to be ahead when compared with the others, while /actually/ the power of the populous and warlike tribe ... makes the gardens
[161] safer, and because the somewhat dense population can no longer de-
[248] pend exclusively on hunting and fishing. They plant a little cotton
[251] and a lot of manioc roots, the flour of which, packed in baskets and
[439] large palm leaves ..., they have been selling to the boatmen of the Tapajós ever since they established peaceful contact." (4)

4. Martius, 1867: 390: "In den Kuensten des Landbaus scheinen die Mundurukú nur insoweit Andern voranzustehen, als die Macht des zahlreichen und kriegerischen Stammes ... den Pflanzungen mehr Sicherheit verleiht, und die etwas gedraengtere Bevoelkerung nicht mehr bloss von Jagd und Fischerei abhaengig seyn kann. Sie bauen

/3 cont./

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> etwas Baumwolle und viel Mandioca-Wurzel, deren Mehl, in Koerbe und breite Blaetter von Palmen ... verpackt, sie an die Schiffer im Tapajôz zu verhandeln pflegen, seitdem sie in friedlichen Verkehr getreten sind...."

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(I should like to insert here the following question: Did Martius have knowledge of traditions regarding a preagricultural era of the Mundurukú? It would seem so, for he writes in the above-quoted passage: "... the somewhat dense population can no longer depend exclusively on hunting and fishing"; this might indicate knowledge of a previous stage of the Mundurukú as hunters and gatherers but not as agriculturalists.)

*241 Still more or less in the same period, we have the testimony of Bates who speaks of the Mundurukú as agriculturalists and good workmen in various parts of his book, though he does so rather offhandedly; he notes the fertility of the land and the relatively small effort required of the Indian to bring forth the necessities /4/ of life; he tells of the large gardens of the Mundurukú which he saw on the Cuparí River and of how the women make flour; he says that the Mundurukú carry out a certain amount of flour trading with the traders of the Tapajós, and finally he states that aside from bitter-manioc roots they raise sweet manioc, sweet potatoes, and sugar cane. (5)

[439]
[244]
[249]

5. Bates, 1944, passim.

114 There are practically no twentieth-century sources on the Mundurukú. The Franciscan mission has not yet published its materials on these Indians, and the work of Robert Murphy, who also studied this tribe in 1952-53, aside from a few articles, has not reached us. Thus, our knowledge is based almost exclusively on the meager data of the above-mentioned authors. Only Gonçalves

/4 cont./

114 Tocantins appears to have provided some additional materials on Mundurukú agriculture. But his work is not available to me at the moment.

*24] [22] The Handbook of South American Indians summarizes the subject in these few lines: "The Mundurukú subsist partly on horticulture and partly on hunting, fishing and gathering. Tocantins' (1877) list of plants cultivated by them includes two species of manioc, sweet potato, pineapple, sugar cane, various peppers and beans, and several species of bananas. Other authors mention cotton, tobacco and genipa. Tocantins names some 30 noncultivated plants utilized in Mundurucu economy." (6)

6. Horton, 1948: 273.

*24] 12] [17] And this is all, more or less, that is known of these Indians' agriculture. The present article, therefore, attempts to amplify this knowledge, although the author is well aware that in many respects, and especially regarding garden methods, the Mundurukú system does not differ materially from that of other tribes in the region, or in the Amazon basin in general. /5/ Practical experience in the matter teaches us that agriculture among the Indians of the Amazon forest allows for slight variations, but not for basic differences.

II. Garden methods

If we regard the agriculture of the Mundurukú Indians as a culture complex, we can easily single out two distinct elements. One is the purely material, manual, or technical element, which will be discussed here. The other is made up of various social factors which render agriculture not a lifeless task or factor, lacking all influence, not an isolated complex within the tribe, but something vitally integrated into tribal life, something upon which the well-being of the community and of the family now depend. In this sense, [182] agriculture itself becomes a social element in native life. (7)

/5 cont./

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7. Let us explain further the Indian's notion or idea of the concept "garden" (ko). To him, "garden" is, basically, a garden of bitter manioc, or in a broader sense, tubercles such as sweet manioc, yams, sweet potatoes, caladium, etc. This narrow concept probably arose in the time when tubercles, especially bitter manioc, were the only cultivated plants. Nowadays, of course, the Mundurukú have at their disposal a much greater variety of cultivable plants which they grow in their bitter-manioc gardens. Speaking of these products, they usually amplify on the "garden" concept with terms which, to our minds, would seem unnecessary, such as: "the pumpkins which I grow in my bitter-manioc garden," etc. If they have prepared gardens of products which are not tubercles, such as for example maize alone, they will clarify the matter beforehand by speaking of a "maize garden," etc. But "garden" means, to them, a bitter-manioc garden. As for the dual term for garden used by men and women, we shall speak of this when we come to social factors.

*241 [189] The entire process of native agricultural work, especially the application and execution of what we could call "garden methods," is based on fixed, traditional norms, which in turn are determined by the conditions imposed by nature as to climate, seasons, terrain, etc., and also by the logical sequence of agricultural tasks.

/8/
*241 which may easily be fitted into the following outline of the technical development of a garden plot:

1. Choosing the site and the quality of the soil.
2. Determing the size and shape of the new plot.
3. Clearing the undergowth.
4. Felling the trees.
5. Burning the felled vegetation.
6. Piling up and burning the remaining brush.
7. Digging and planting.
8. First and second weeding of the plot.
9. "Tearing up" the plot (pulling up the manioc roots, gathering the harvest).
10. Replanting the garden.

Let us now take up these tasks, one by one.

242 [181] 1. Choosing the site and the soil. The Indian is, by nature, a practical person. When he is thinking of preparing a plot, he naturally looks for conditions that will most facilitate his task and ensure the safe growth of his garden. For this purpose, he chooses the land most favorable to horticulture, for all sites are not adequate to planting. Preferably, he sets up his plot on slightly sloping ground or on a mild incline, so that rain water and freshets will drain immediately. He takes flat ground only when it is somewhat sandy, permitting rain water to trickle down to the subsoil rather than remain stagnant in the field. This is also the reason why gardens are not set up in humid lowlands: the roots, the tubercles would rot. Aside from this, [125] he also makes sure that there are no ant nests or vermin on the chosen site. Ants would cut down all the manioc, ruining the garden completely.

Even when he finds a site in good circumstances, the Indian is faced with the question of what he can plant in this soil. As a rule, he has a good knowledge of soils and their qualities, and from the experience of generations he knows, almost intuitively, what he can expect from them. In other words, he understands /1/ empirically what he can plant there and what the result will be under normal circumstances. The size of the plot derives, at least in part, from

/1 cont./

242 this estimate. Through repeated tests he finds out the type of the soil and draws the necessary conclusions. As a rule, he proceeds as follows: with the machete, he digs a hole and examines the soil.
[823] By crumbling it between his fingers, he finds out its quality by touch. He distinguishes three types: sandy, clayey, and black, allowing for certain variants and intermediary types, according to the composition and percentage of clay or sand. He makes these soil tests at various depths and in various places when he suspects that only a thin layer is involved, or to find out how far /the layer/ extends. The type of garden also depends on the type of the soil; in other terms: depending on what he wishes to plant, he has to choose a /specific/ type of soil. For this reason, in his hunting forays through the forest, the Indian pays attention to the ground through which he passes in order to find out where he will find appropriate soil when he needs it. The following rule applies as a general norm:

242 154 sandy soil: good only for bitter manioc; inadequate for other plants.

clayey soil: good especially for bitter manioc, tubercles in general, and also for banana plantations; other plants do not grow well in this soil.
[845]

black soil: good for everything. For this reason, black soil is always sought out and preferred. This is the tobacco ground par excellence.
[849]

*241 2. Size and shape of the plot. As was already partly explained, the size of the plot depends on the quality of the soil. If /the Indian/ [842] finds the chosen soil somewhat weak, he figures out beforehand that the harvest will be less satisfactory, and makes the plot somewhat larger. From the practice he has acquired since youth, he empirically figures out the area that will be needed. To do this he does not use measurements, as our peasants do ("braças," "varas," and such).
[804] I attempted in various ways to find out how the Munduruků figure out the size of the plot he is about to prepare. The answers were always the same: "... just by looking, you already know ..." /8/ or "... just by looking...." If the family has grown through the years,

/8 cont./

*241 or if other relatives have come to live in the house, then the plot is made larger. The calculation is thus basically intuitive, even [804] though it is based on practical experience gathered through generations.

*241 Nowadays, the Indian usually plants a little more than he needs
197 for his own use, to obtain a surplus (along with the surplus of rubber
[437] he has gathered) and improve his lot by using it in the purchase of clothes, nets, machetes, etc. The garden, therefore, helps him to maintain his economic balance at his present stage of acculturation.

[342] Another factor which also depends in part on the terrain is the shape of the plot. Here, however, other elements are already in evidence, especially the influence of neo-Brazilian acculturation. Whenever possible, the Mundurukú prefer the traditional shape, which is rounded or elliptic-oval. Thus did the ancestors make their plots, and thus they are made to this day in the villages of the interior. Still in 1957, this garden shape could easily be distinguished when flying over the villages of the Kabitutu and Pararokti. But this is no longer an iron rule. "It depends on the terrain," they told me. But I believe that the influence of the peasants is stronger than that of the terrain. Thus we find gardens of various shapes, elongated, rectangular, and even square. The latter predominate especially in [361] the Cururú and Tapajós region, and thus in areas where the Mundurukú [182] no longer live in village communities but in isolated dwellings. The dismembering of the community and the emancipation of the Mundurukú family from the village system are reflected here as they are in many other aspects of the culture.

*241 3. Clearing—tyut tatabm. To clear is to cut down the undergrowth with the machete, removing from the site of the future garden shrubs, young trees, and brush. This is done to prepare for the next task, which is the felling of the trees. In this way, the woodcutters have greater freedom of action. After the trees are felled, it would be impossible to clear the ground of undergrowth. As a rule, the clearing is done in three days' work, and some time is allowed to elapse for the brushwood to dry.

/9/

*241 319 4. Felling—yup chign or yup chichign. The felling of the trees is almost an art in itself, for doing it in good style requires knowledge and ability, a steady eye and calculation, especially as to how the trees will fall or how they must be cut in order to fall in the most desirable way. There is a certain method involved in felling trees: a larger tree is chosen (whenever possible, in one of the corners, or at least on one of the higher sides of the ground), and an imaginary line is drawn enclosing a strip /of ground/ that broadens out in the shape of a wedge. Within this strip, all trunks are chopped about halfway through, until they begin to snap. But the larger tree is chopped last, all the way through, and felled. It falls on the neighboring, half-cut trees, dragging them down in its fall, and through them all the other trunks within the chosen and prepared wedge. An entire strip of forest thus goes down at one fell swoop with a big noise, opening an enormous clearing, sometimes 100 meters long or more. Then, whatever timber may have been left standing is felled, and so are the remaining corners, "to straighten out the shape," rounding off or squaring off the plot. But "only these are cut down one by one."

[221] The felling of trees is usually carried out in April and May. The time of felling is determined by that of clearing, which precedes it by about two to four weeks. As a rule, the Munduruků takes three days' work to do the felling on an average plot.

*241 372 5. The burning—imapign. The vegetation felled to clear the new plot is kept "resting" for two months or more, in order to dry thoroughly. The Munduruků usually burn their clearings around the month of August. They grant the sun sufficient time to dry even the larger trunks. This relatively long spell /is granted/ so that the vegetation may burn as thoroughly as possible. The burning then becomes a light and easy task. Whatever trunks may still chance to remain after the burning are left right there, and are frequently utilized as a source of firewood for the village or house. As a rule, the plots of the Munduruků are quite thoroughly burned.

/10/ To set the fire, they choose a breezy day when the wind is not too strong. Thus the breeze feeds the flames but does not allow

/10 cont./

*241 372 them to work too quickly, or else they would merely burn the small branches and foliage and leave the trunks intact. The trees would be charred rather than burned.

To set the brush on fire, the Munduruků use torches made of dry straw or of certain resinous woods. With them, they set fire to various parts of the clearing. If there are other gardens or even houses nearby, and danger that the fire may reach them, they often [816] burn first a narrow strip of brush lying below the wind, so that later on the great fire in the clearing will meet a firebreak and will not go on to the neighboring forest or house. As a rule, they also prefer to burn the clearings before they set fire to the grasslands, as is their [821] custom. According to them, the burning of huge expanses of grasslands would attract rainfalls that would interfere with the burning of the clearings.

6. The remaining brush. Taipa is "the brush"; "to pile up the brush" — taipa chign or taipa chichign; "to burn the brush" — taipa mapign or simply imapign, "to burn."

While the thin branches and trunks burn within hours or within a day, the larger trunks take longer, burning down slowly. Then comes the turn of the remaining brush. Foliage, branches, and pieces of timber which have not burned up completely are gathered together and piled up on top of the thicker, still smoldering trunks, the better to destroy them. Then fire is set once more to this pyre, in order to reduce the remaining timber to ashes and clear the ground for planting.

Like all garden tasks, the burning, the piling up of the brush, and the burning of the pyre require practice and ability. Otherwise the Indian will get a poorly burned field.

*24 [821] 7. Digging and planting. Next comes the time of planting, in the month of September or October, depending on the first rains. Men and women go to the new plot to plant together. Planting is a dual task consisting of two distinct acts: digging or opening up the ground, and planting, /11/ that is to say, slipping the bitter-manioc [463] shoots into the ground. The first task is the man's, the second the woman's.

/11 cont./

*241 442 [273] The man digs or opens a hole in the ground (ikudn). He does this with a "digging stick," which consists of a strong rod, about 2 meters long, pointed at the lower end. The man pushes this rod hard into the ground, at an angle of 30 to 45 degrees, and then straightens it to a vertical position. This opens a small pit into which the woman who accompanies him puts two or at most three shoots of bitter manioc (8) (masok taisahm or masok ip maum). Removing the tip

[131] [244]

8. Maniva /bitter manioc/ is the name of the plant and the generic name of this vegetable (Manihot utilissima), while the roots, in the form of large tubercles, are called "mandioca." The bitter-manioc stalks, after the harvest, are saved for the next planting, when they are cut into pieces of 20 centimeters at most. These pieces, or "manioc shoots," are planted in the manner indicated above, for manioc does not propagate itself through seeds.

of the stick from the pit, she steps on /the pit/ to close it up and to pack the soil, but in such a way that the upper ends of the manioc shoots stick out in order to grow branches and leaves. Under the in- [177] fluence of civilization, nowadays the Mundurukú are already using spades and even iron digging tools. The distance between the manioc pits is approximately 1 meter on the average.

*241 There is no doubt that the Mundurukú carry out their horticultural work within a certain system, not only as regards the steps involved in clearing the plot but also in the planting itself. There is a sequence to the planting steps. In the time that elapses between the final burning and the planting, as a rule they sow watermelon, which thrives amazingly in the recently burned ground. Only then

/11 cont./
241 does the turn of the tubercles come. In general outline, the planting sequence (although it is not always strictly observed) is as follows:

a) Optional cultivation of watermelon (and pumpkins as well?)
b) Planting or set cultivation of:
   1. bitter manioc
   2. yams
   3. sugar cane
   4. pineapple

/12/ /Figure 1 appears here./

   5. timbo vine
   6. rice
   7. maize
   8. beans, pumpkins, etc.

Other plants such as sweet manioc, caladium, pepper, etc., are fitted into the corners of the plot, or on the sides, depending on the possibilities and circumstances. Anyhow, it should be noted that tubercles, especially bitter-manioc roots and yams, are in the center of the garden, while other cultivated plants which are not tubercles are placed around it. Yams and manioc roots are planted in alternate spots, checkerboard fashion. Sweet manioc, sweet /13/ /Figure 2 appears here/ potatoes, and caladium, on the other hand, are planted together and are not ordinarily mixed with other cultivated plants. Tomé, one of my informants, drew me the sketch outline of a garden. The numbers on it refer to those mentioned above in the planting sequence.

In connection with this agricultural system, it is also well to mention cultivated plants in general. A distinction must be made between plants which are cultivated in the garden proper, and other
245 plants, especially fruit-bearing ones, /which are cultivated/ outside it, in fallow plots, around the houses, at canoe landings, or at other much frequented or easily accessible spots. The first category includes /14/ agricultural plants proper; the second involves some incipient fruit growing, even though on a very rudimentary level. It should also be mentioned that for nearly all the plants they cultivate, the Munduruků are familiar with several varieties which they differentiate easily. A list of these varieties, with respective native and scientific names, is given in the last part of this work.

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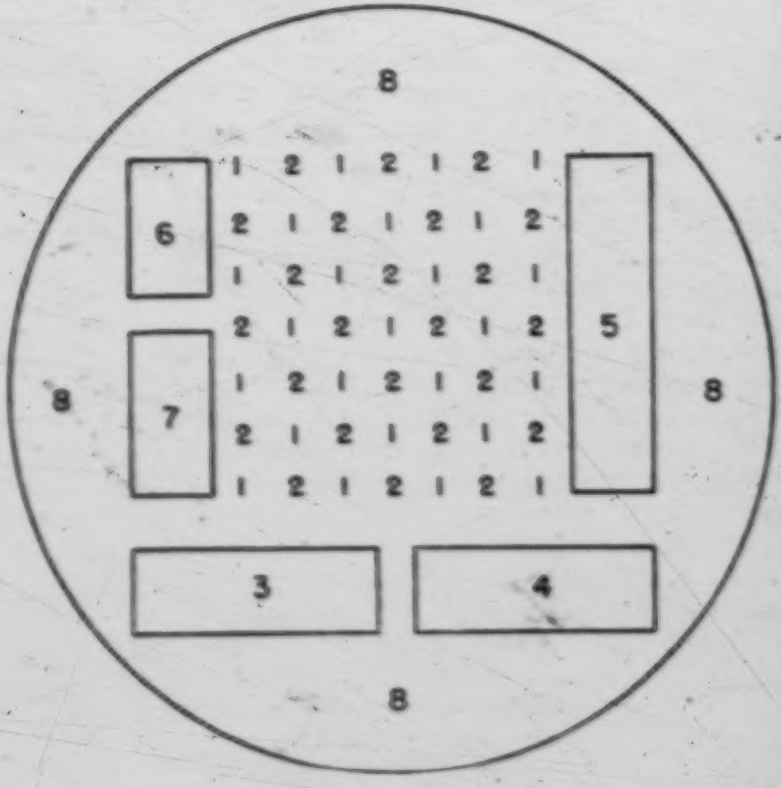

Figure 1. Plan of a Munduruků garden

14: Frikel--15 E-5 (1957) 1959 SQ13 Mundurucu SQ13

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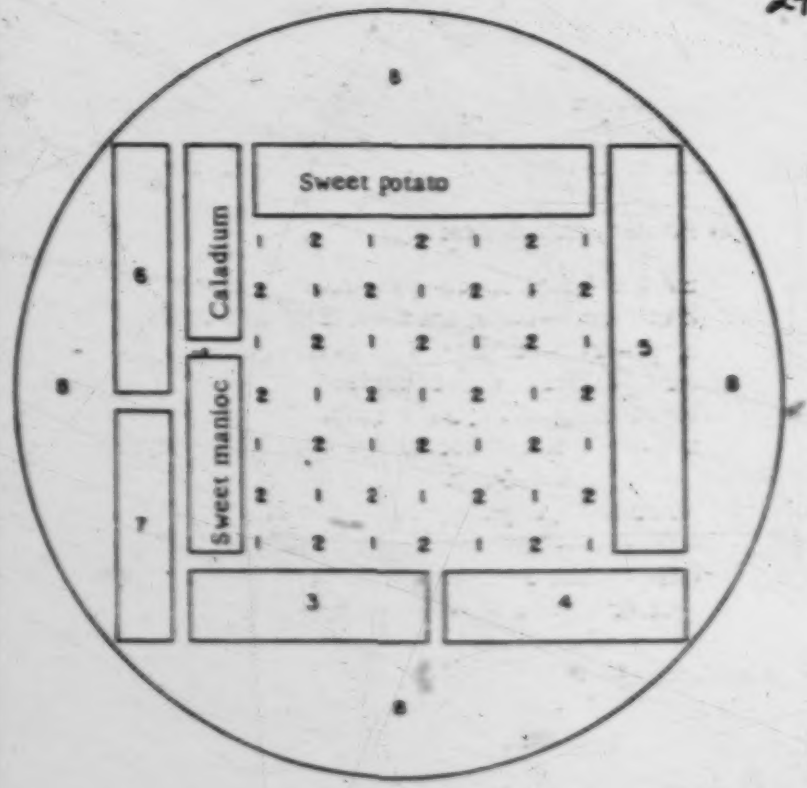

Figure 2. Plan of a Munduruku garden (expanded)

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a) Plants cultivated in the gardens:
bitter manioc—masok, six varieties
manicuera—maso, manikue, two varieties
sweet manioc—makachi, two varieties
yams—awai, 11 varieties
sweet potato—wechick, four varieties
caladium—various names (poririt, kurudyudyut), two varieties
pumpkin—yurumu, yurumu a, various kinds
watermelon—borãchia, borãsia, three varieties
sugar cane—kanya
pineapple—ipara, five varieties
maize—mora, two varieties
rice—arúida
beans—feijáu, wetoi, three varieties
peanut—wenambone
tobacco—he, e
curauá pineapple—ipara he

Also:
pepper—achi, achi a, four varieties
banana—aku, 11 varieties
cotton—buru, two varieties
urucú—tyuku, tyoku a
papaya—asãu a, two varieties

b) Plants cultivated outside the gardens:
gourd—ua e, wa e
jamaré gourd—uai a, wai a

/15/ arrowhead—opipa
coffee—kape, kape ip, various types
cacao—wadye, three varieties
genipa—warem ap, warem ap a
inga—chiriri
lemon—brimão, brimáu
orange—yarai, yarai ip
mango—mãga, mãka, various types
cashew—murese, muroso, three varieties

/15 cont./

*241 Also:

192 pepper—achi, achi a, four varieties
262 banana—aku, 11 varieties
cotton—buru, two varieties
urucú—tyuku, tyuku a
papaya—asãu a, two varieties

*241 There is, therefore, a small group of plants which are found in the gardens as well as out: pepper, bananas, cotton, urucú, and papayas.

[249] For certain plant species, such as for example tobacco and the curauá pineapple, a plot of ground is often set aside, or a small garden is prepared separately.

249 Aside from these plants, which are useful to subsistence, the Mundurukú also have a certain number of vegetables which back-
[302] woodsmen call "smell" and which they use when they are bathing, to give their body, and especially their hair, a more pleasant odor.

[757] A few herbs are also cultivated for medicinal purposes. Others yet
[789] are used in the practice of certain superstitions and charms. Although I am aware that these subjects are not directly related to agriculture, I mention them in passing since "cultivated plants" are involved.

*241 From this list, it becomes clear that the Mundurukú must have
177 had considerable contact with civilization and with other tribes to have acquired such a number of useful plants. As for the ancient stock of plants cultivated by the Indians in the Amazon forest, tubercles must be mentioned first and foremost. Moreover, /16/ it seems that the use of some of these typically native plants, such as for example curauá pineapple or sweet manioc, is not very old, for a series of tribes possessing a type of agriculture quite similar to that of the Mundurukú are not yet familiar with the cultivation of sweet manioc or curauá pineapple. (9)

[171] 9. Thus, for instance, the majority of the Carib tribes of the Brazilian Guianas are unfamiliar with the cultivation

/16 cont./

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[171]

of sweet manioc, even though, in many respects, their agricultural system is quite similar to that of the Mundurukú.

The first great influence of civilization unquestionably occurred during the nineteenth century, following the pacification of the
[361] Mundurukú, when they settled on the margins of the Tapajós. Through this contact, nearly all the plants cultivated on the lower Amazon became known to the Mundurukú and were, for the most part, adopted
[797] by them. The old mission of Bacabal must also have had some influence on this development. The new agricultural acquistions, as well as their handling and usage, spread rapidly along the Tapajós, but very slowly toward the interior and especially toward the grass-
262 lands of Mundurucânia. The knowledge and use of manioc flour ex-
177 emplifies this process. In the old days, the Mundurukú were not familiar with manioc flour and made only tapioca cakes. Nowadays, even in the villages of the interior, they all make flour. But, as I said, manioc flour is a relatively recent acquisition. My informant Tomé told me the following: "My grandmother told me, one day, that in her childhood, in the villages (of the interior), they did not
[252] know yet how to make flour. They only made tapioca cakes, which sometimes they even roasted on stone (slabs)...." This was at the most 80 years ago. The Mundurukú of the Tapajós, on the other hand, being far more exposed to contact with civilization than the Mundurukú of the central grasslands, were already quite familiar with manioc flour in those days and even prepared it for commercial pur-
[439] poses. Martius, Bates, and others, as we already indicated at the beginning of this work, speak of the important flour production and of the flour trading which the Mundurukú of the Tapajós carried on
241 with the traders of Santarém and of the lower Amazon. It seems
177 obvious, therefore, that the spread of agricultural elements into the Tapajós region occurred /17/ at a rather uneven rate, and that in the case cited, in the villages of the interior, the making of manioc flour was acquired much later than in the villages of the Tapajós River. If this happened in connection with the more usage of a plant

/17 cont./

*241 which they were already cultivating, the introduction of new plants
177 /must have been/ all the more /uneven/. Here, the process may have been even slower.

262 Of even more recent acquisition, especially through the influence
137 of the Franciscan mission founded in 1911 on the Cururu River, are
177 products such as rice, beans, and various other plants which are
799 cultivated chiefly by the religious sisters, but which have been adopted by the Indians on a very modest scale. During the last decades, the following fruit trees have reached them: the mango tree, the orange tree, the lemon tree, the coffee shrub, and a certain type of cacao tree. They were already familiar with other products such as maize, pumpkins, etc., but cultivated them on a very small scale.

*241 8. Weeding or cleaning. We have described the planting. A few facts remain to be given concerning the garden tasks after planting. It is obvious that, once the planting itself has been done, the plot still requires a certain amount of care. Not right away, but after several weeks or months. /sic/ This is the weeding. Between the planting and the harvest, two weedings of the garden are usually carried out, the entire plot being cleaned. They speak of the first and second cleaning, or of the first and second weeding. This is done almost exclusively with the machete. There is no specific time set aside for this, because it depends to a large extent on the weather (rains) and on the need. The first weeding is called tip ogn, the second karit ogn.

244 9. The harvest. The Indians generally use the regional term, "tearing up the plot," or "pulling up the bitter-manioc roots"—masok ta ogn. Within a year, the garden has matured and may be torn up. The manioc roots are pulled up by hand. The entire plot is not harvested at one time, but according to need. In order to pull up the manioc roots, a certain amount of strength and ability is required. Often, when the tubercles hold firm to overly hard ground, [412] the Indian digs with the machete around the roots in order to loosen the soil and pull out the manioc root /18/ with greater ease. This same technique of using the machete as an auxiliary tool in the extraction of manioc roots is also used in gathering other tubercles, such as yams, sweet potatoes, etc.

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10. Replanting—yabi kudn or wrabm yup maum. Once the garden has been torn up, that is, when the harvest is completed, the plot is abandoned and lies fallow. When the soil is very good, a replanting is attempted. The ground is again weeded and cleaned, and if the need exists, the refuse of the field—branches or small shrubs—are burned. The new planting is done. This replanting process is also used in urgent cases, when the Indian is unable because of illness or some other circumstance to prepare a new plot. When a replanting is done with the soe purpose of taking advantage of the soil, a new plot is almost invariably cleared, although it is small and sometimes adjacent, merely enlarging the old one. The [242] Indian knows perfectly well that the yield of a replanting is much smaller than that of a new garden. Because of this, he must supply the portion which the replanted ground will fail to produce. Frequently, the fallow or newly torn-up field is used merely to plant [245] banana trees, if the soil is appropriae.

Nowadays, gardens are indispenable to the Munduruku's existence. He is still a hunter, a fisherman, and a gatherer of wild fruit. But without the gardens, he could not survive. He himself would regard as absurd the thought of subsisting merely on hunting and gathering. He knows how to utilize his gardens and the plants he cultivates, extracting from them a series of by-products which contribute to his subsistence. (10)

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10. It is rather interesting to compare the nativeagricultural methods with those of the peasants on the lower Amazon. Wagley, in his study of "Uma comunidade amazônica /An Amazonian Community/" (1957: 100 pp.), describes, in more general terms, the same procedure of garden clearing, planting, and cultivation, in short, of horticulture, among

/18 cont./

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the peasant population of "Itá." Let us note here /19/ merely some key terms: choice of the site and use of fallow plots (:101), clearing and felling (:103), burning and planting (:104), chief cultivated plants (:102), secondary cultures (:104), replanting (:104). This comparison, in fact, corroborates the statement by the same author that in the lower Amazon "the basic agricultural methods have changed little since aboriginal times" (:101). The Tenetehara, a Tupi tribe of Maranhão (Wagley and Galvão), 1949), also use agricultural methods and processes which are in many respects actually identical to those observed among the Munduruků.

III. Social factors

*241 Since agriculture is one of the bases of Munduruků subsistence, it is not surprising that it should also be reflected in the social life of the tribe. Certain social factors /19/ are determined or influenced by the garden-agriculture complex. I shall allude chiefly to the threefold relationship of:

1. Garden and individual: the division of labor;
2. Garden and family: agricultural property and mutual assistance;
3. Garden and tribal group: intraterritorial migrations.

1. Garden and individual: the division of labor between the sexes

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462 Among the Indians, there is ordinarily a rule or agreement whereby each person is the owner of what he acquires, makes, or produces.

/19 cont./

422 462 Thus, certain rights of exclusivity are established beforehand for the individual. This is expressed in the principle of the sexual division of labor. For example, the raw materials and the products [285] [323] of basket making are exclusively the property of the man; clay and pottery articles, of the woman. Traditionally, basket weaving is done only by men, pottery making only by women. In all sectors of tribal life, the tasks devolving to each sex are determined by these traditional principles. Thence derives the concept of private property.

462 Throughout the material culture of the Mundurukú, as well, [89] the two work cycles—of men and of women—are clearly evident. This "muscle-bound" division only concerns us here as regards agriculture. The subject, however, is almost a borderline case, *241 462 where these two work cycles meet. In agriculture there are tasks performed exclusively by men, especially in the initial phase of the preparation of the plot; and there are tasks performed exclusively by women, especially from the time /20/ of planting onward; but there are also joint tasks, in which both sexes participate, such as in the planting of bitter manioc. There the man opens up the pit with the digging stick and the woman places the branch or shoot of manioc in the open hole and closes it by stepping on it.

The tasks at each garden stage are thus determined by the system of "muscle-bound" cycles. An outline provides the following pictures:

TASKS

	of the man	of the woman
1.	Choosing the site and the soil	- -
2.	Determining the size and shape	- -
3.	Clearing the undergrowth	- -
4.	Felling the trees	- -
5.	Burning the felled vegetation	- -
6.	Piling up the remaining brush	- -

/20 cont./

	of the man	of the woman
*241 462 7.	Burning the remaining brush	- -
8.	Planting: opening the pit	Planting: burying the manioc shoots
9.	- -	Weeding the garden
10.	- -	Doing the second weeding of the garden
11.	- -	Harvesting: pulling up the manioc roots, tearing up the plot.

This basic outline applies to normal cases. If there is pressing need or urgency, the man may help, at times, in weeding, cleaning, and even harvesting tasks. But in themselves, these are tasks peculiar to the woman, and they devolve by right to the woman in accordance with the working cycle.

This division of labor presents yet another facet. It does not exist merely as regards the preparation and usage of the garden, but also as regards the very species of cultivated plants. There, too, there is a certain exclusivity, to wit: the man alone plants and cultivates watermelon, pumpkins, peanuts, papaya, and beans.

In the case of most cultivated plants or seeds, however, there is a joint task involved in the manner already mentioned: the /21/ man opens up the pit and the woman puts in the shoots or seeds of bitter manioc, yam, sugar cane, maize, rice, pineapple, banana tree, etc., etc.

*241 192 462 The terminology applying to the concept "garden" is also dependent upon this division of labor into two cycles according to sex. There are two words for "garden": the man says kat, the woman ko. These two terms are not, properly speaking, a dual designation of the garden, but they refer to the garden while it is under the care of one of the sexes. These are relative terms. Thus, kat, the term used by the men, covers the preparation of the plot until planting time—the clearing job performed by the men. Ko, the women's word for "garden," covers the woman's labors in the plot from the

/21 cont./

241 192 462 time of planting onward. In terms of their basic meaning, these two words could be translated as follows: kat as "clearing" and ko as "planting." It thus becomes clearer why the woman would never say, for instance, that she is going to the kat, to the clearing, because it is not she who does this; but /would say/ that she is going to the ko, the planting, because it is she, in fact, who does the planting. The opposite applies to the man. If, however, there is need for the use of a general, impersonal term, the man will also use the word ko, but with the respective modifier of its being "hers" or "the woman's," so that no misunderstanding may arise.

2. Garden and family: agricultural property and mutual assistance

241 621 It is plain that this complex of agricultural matters is reflected in the family life of the Indians, not only for the Munduruků who still live communally in the old village system, but also for those [178] [591] who have broken away from this way of life and set up a separate nucleus with their family, living an isolated life with their own house and garden. Indeed, nowadays, it is necessary to make a distinction:

[162] 1. Between the Munduruků Indians of the interior, numbering 250, a minority of approximately one-fifth of the total of 1,200, who still live according to the traditional system of tribal communities or villages;

[177] 2. Between the Munduruků who are already more or less acculturated /and live/ on the Tapajós, Cururú, Tropas, etc. rivers.

/22/ Within the first group, in the interior, we find more or 241 476 621 less the primitive or traditional form of the Munduruků agricultural system, a system of collective labor based on mutual assistance. Murphy indicates the present conditions in the villages of the interior when he says: "Every adult /Munduruků/ of the plains of the male sex has his own plot which is cleared by the collective effort of all the men in the village and which is planted with manioc roots with the cooperation of the entire village." (11) This cooperative labor

11. Murphy, 1954: 28.

/22 cont./ This cooperative labor exists in fact up to a point in the villages, and must be understood within the framework of the division of labor and its juridical bases, which apply first and foremost to the right to private or individual property. As regards garden matters, we are dealing with the joint task of two social elements, male and female, and their respective cycles of labor. Men and women, however, even after they marry and form a family, do not lose, through marriage, their individual property rights to their part of the garden, for the Indian is basically an individualist and does not recognize communal property rights. To compensate for this, they have recourse to a concept which we might call "right of indemnification" and which refers to the communal usufruct of the plot by the man, the wife, and, of course, the children for whom they are responsible.

It is well to explain this matter of plot ownership in greater detail.

I believe that it is necessary to make a distinction between the owner of the plot, and the owner of the labors performed on his plot and of the results obtained.

The land, in the forest and even within the area occupied by the tribe, has no owner. Anyone may clear a plot wherever he wishes. But once the site has been chosen, it becomes a property for the entire period while it is producing; it is then the man's property. After it has been abandoned, however, it becomes once more anybody's and everybody's land, unmanured land. /23/ (12) There only

12. Among the Tenetehara, also a tribe of the Tupi group, a similar phenomenon is observed. "Garden lands, that is to say, lands on which people have expended labor, are either individual or group property. During the time a man still has crops on the site, it belongs to him. But as soon as he has

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harvested all his crops and abandoned the land to the secondary growth which begins to cover it. It may be used by anyone." /Cited in English/ (Wagley and Galvão, 1949: 50).

exists, therefore, a temporary property right, while /the plot/ is being used: a right that might more aptly be termed of usage or usufruct.

This concept is complemented by the other facet of the matter, involving the labors /expanded on/ and the products of the plot. Included here is the aggregate of the men's and women's tasks (in accordance with the cycles of labor); and the family, which in itself forms a small community, asserts its rights.

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The concept of this right to seemingly communal property derives from the division of labor between men and women. By individual right, each is the master and owner of what he produces, makes, etc. The man prepares the field, the clearing (kat), and is the owner of it. Strictly speaking, therefore, the woman plants on alien property (i.e., the man's or husband's) and pays him for the usufruct of this right, later on, with the produce of her planting. In other words: as indemnification for his preparation of the plot, the man or husband may share in the produce of her planting. On the other hand, the woman is the owner of the planting, and the man or husband cannot, according to the right of private property, enjoy the fruits of someone else's planting, even if it be his own wife's. He does, however, acquire a certain right to the planting, not of property but of usufruct, because his clearing labor made its existence possible. The woman thus has the obligation to allow her husband [illegible] within the framework of the division of labor. We are dealing here, therefore, with reciprocal rights (or, inversely, duties) which are normalized and counterbalanced by the right of "indemnification." Indeed, in terms of the division of labor, this right of indemnification is absolutely necessary. What would the man do with the plot since he cannot plant, this being the woman's

/23 cont./

*241 421 462 594 right? She, /in turn/, without the man's previous labor, could only plant /24/ in small quantities, and furthermore, for lack of proper soil preparation, the cultivated plants would not grow properly. In both cases, the results would be meager and the family's subsistence, in this sphere, would be endangered. Hence the need for this right of mutual indemnification.

*241 476 [428] Every man, or every family, sets up his own garden and owns it by exclusive right. The owner, however, requests the assistance of his relatives or of the men of the group in which he lives, to help him in his tasks (clearing, felling, etc.), while the woman, in turn, later (but not always) requests the help of women for the typically feminine tasks within the above-mentioned system of the division of labor. (13) The community assists the individual, or rather, the

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13. Although we are dealing here with the agriculture of the present-day Munduruků, let us note two pieces of information, gathered separately and in widely separated places, namely, one by myself among the acculturated Munduruků of the Curuá River, and the other by the missionary Brother Angélico in a village of the interior, in Dekudyem. According to these data, the agricultural system of the ancient Munduruků was slightly different as regards mutual assistance and ownership of the gardens. They say that originally, the entire group prepared a large plot for all members of the community and that individual rights to the garden were based, precisely, on mutual

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assistance, on compensation for the labor rendered to the community. Aside from this statement about a collective garden, the informants also mentioned private family gardens, where they chiefly (but not exclusively) cultivated supplementary, accessory foods, such as bananas, pepper, etc. The data gathered, however, give no clear evidence as to whether this collective garden served for the communal, daily use of the group, or whether it merely existed as a reserve in case of need, in the assistance of the old and incapacitated, in the sustenance of guests, or as a ceremonial garden to contribute to important festivities. Regarding a type of garden among the Tenetehara, used communally but owned privately, see Wagley-Galvão (1949: 139).

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members help each other; and each must assist the others, when their turn comes to prepare their plot. Thus there exists, with reference to this collective work, an elaborate system of revenue and compensation on an equalitarian basis. Days of labor are received, and later this assistance is repaid in kind with days of labor. We are dealing here, therefore, with a broad system of mutual assistance. Naturally, the owner of the new plot finds his chief support among /25/ his own kin: adult children, brothers, brothers-in-law, sons-in-law, etc. This mutual assistance, however, is not obtained spontaneously, but through personal invitations proffered individually rather than collectively. The manner of doing this is

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241 476 very simple: the assistance is requested and the day and other circumstances are set. There are no invitation dances or things of that sort. It is important for the owner of the plot to set the days of assistance, because he has to provide the menu for that day: meat, fish, tapioca cakes, drink. The continuity or interruption of garden labor depends on the acquisition of this food. When the men are many and the owner of the plot cannot get sufficient food, the work is done in shifts. The site is cleared for a day or two, and then the work is interrupted to hunt or to fish. The felling is done later in the same manner, "as the food comes," as they say. The breaks, or, inversely, the days of work, thus depend on the existing victuals or supplies. (14)

476 191 14. The custom of inviting neighbors and relatives to communal tasks and of setting the respective days also exists, in this same sense of mutual assistance, among the peasants of the lower Amazon. In the area of Santarém, Almeyer, Óbidos, etc., this is called puxirum, "to set a puxirum," "to go to a puxirum," etc. Undoubtedly, this custom has deep roots and originated in ancient times, when the lower Amazon still belonged to the Indians and their villages. In other areas, the puxirum is called ajuri (Negro River) or else mutirão (in the south of the country). Wagley (1940: 109) also reports this cooperative venture as putirão or "invitation." See also Caldeira, 1958.

241 476 This explains also why men and women, in turn, prefer to work in groups: because they work at the invitation of the owner of the

/25 cont./

241 476 garden. When, however, the utilization of the mature garden is involved, then the family manifests and exercises its right of private ownership. In most cases, man and wife or the members of the family prefer to pull out the manioc by themselves. The garden is thus utilized, as a rule, without recourse to other people or to the group. This, then, is the position of the Mundurukú family regarding the garden and its produce within the tribal community: The family is located within the community, and needs and obtains from this community mutual /26/ assistance for the garden tasks; but the family always reserves exclusive rights to the ownership, use, and enjoyment of its garden.

How do things stand, however, for the acculturated Mundurukú? Nowadays, about four-fifths of the Mundurukú have given up the system of life in tribal communities. For these, there is no longer any direct connection with village life, and their communities have been dissolved. The families break free. There are no longer communal houses, but each family has its own home. Inevitably, as a result, they own private plots and gardens. And just as each family lives alone, thus tooeach man or each family prepares his own plot individually. This is the basic pattern. But owing to existing difficulties and to need, mutual assistance has been retained as a beneficial element. Relatives and neighbors are invited to help out in the garden, and conversely, those who lent their assistance are helped in their turn, in the same fashion and under the same conditions as was formerly done within the system of communal life.

241 177 182 462 476 As an essential conclusion, there results from this that among the Mundurukú the division and execution of garden tasks according to sex groups and to work cycles, the planting system, and the mutual cooperation by invitation, are very stable culture elements. They have endured and have not suffered essential modifications, even after the dissolution of the tribal communities to which they pertained and the acculturation to the new, neo-Brazilian environment.

241 202 421 There still exists a type of garden which, up to a point, could be called a "communal garden." This type, however, is found only among relatives in the narrower sense of the term. When relatives (for example: the families of a father and son or of several brothers)

/26 cont./

*241 602 421 are closely united, or when, owing to some reverse, one of the family members cannot prepare his own garden but can help in the preparation of that of his father, brother, son, etc. then, sometimes, a communal plot is prepared. This refers, however, to the concept of "garden" in its absolute sense: a garden of bitter manioc, of tubercles. For they always continue to plant their own bananas, pepper, etc., separately, for their own private use, each family for itself. This type of "communal garden" is found also (or exclusively?) /2?/ outside the old community, among the acculturated Munduruků. I observed such a case, between father and son, in the mission itself, where everyone has his own home. Both parties have equal right to the use of the garden. This type of "communal garden" is quite similar to that known among the peasants as a "company garden." The difference between the two types might perhaps be defined as follows: the "communal garden" serves directly for the use and sustenance of the families involved; the "company garden" exists on a contract basis, and its foundations and goals are usually commercial.

423 428 Once there is property, there arises the problem of inheritance. Each garden has its owner, with all ownership rights. In case of death, the plot passes into the hands of the eldest son, who is, however, nothing more than the "administrator" of this inheritance with a share in the usufruct. The heir is the family, represented by the eldest son in the sense that he must look after the plot, which the family shares along with him. When there is no family, the brothers inherit the plot. If there are no brothers, the other relatives do. In any case, the garden is not allowed to go to waste, and its produce is always utilized.

3. Garden and group: intraterritorial migrations

*241 361 At first sight, the Munduruků gardens often seem to lie far from the house or village. And, in fact, this is frequently the case. But this is nearly always the result of long years of permanence in one and the same spot. As time goes by, the soil around the houses becomes weak and exhausted. (15)[134] It is for this reason that the Indian

2 [See category 116, p. 32 for explanation of this footnote--analyst]

/27 cont./

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15. The complete lack of fertilization methods among the Indians of the Amazon forest is well known. It is only when fallow plots are burned that the depleted soil derives some fertilizing elements from the ashes.

has to seek new sites farther out and set up his gardens ever farther away, so that, after a certain period of time, the Indian group actually lives far from its source of subsistence, until the Indians themselves find transportation of the crops to their homes difficult. Then comes the time to move the village to another /28/ more favorable location. On such occasions, the original (and no doubt the most fitting) form of this reciprocal relation of garden and village becomes apparent.

When a move takes place and a new village is built, the latter [339] lies in the center of the new garden plot of the tuxaua, or chief of the group. The traditional shape of the garden plot is rounded, as already mentioned. In the center of it, the plaza of the new village is cleared, also in rounded shape. Within it, the houses are laid-out [345] in a square: the men's house or shed (hoksa), open in front to the [346] east, with the house of the ancestral spirits (kadoke) alongside it; the oval houses for women and children (kak-o) to the right and left; and the square is closed with another kak-a on the east side, if need be.

/Figure 3 appears here./

[331] The nucleus thus formed becomes a new center of the tribal group, of the clan or sib. The garden plot and the village thus form a unit, with the village standing within the first plot. In the years that /29/ follow, the garden plots expand outward. And if the soil is not suitable, the garden is moved farther out, ever farther, until, after a number of years, the need is felt to transfer the village and start all over again. Thus originate the cycles of intraterritorial group migration.

*24 96 12 21 [66]

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From this relationship of garden and village, and also, of garden and community, there results the relatively slight local stability of the tribal groups, which, however, does not reach the stage of nomadism, and perhaps not even that of seminomadism in the strict sense of the term. In fact, there is a certain amount of group migration resulting from the agrarian situation, since it is the soil that forces the Indian to keep moving on. But these migrations are a slow process which is not strikingly noticeable because the moves from one location

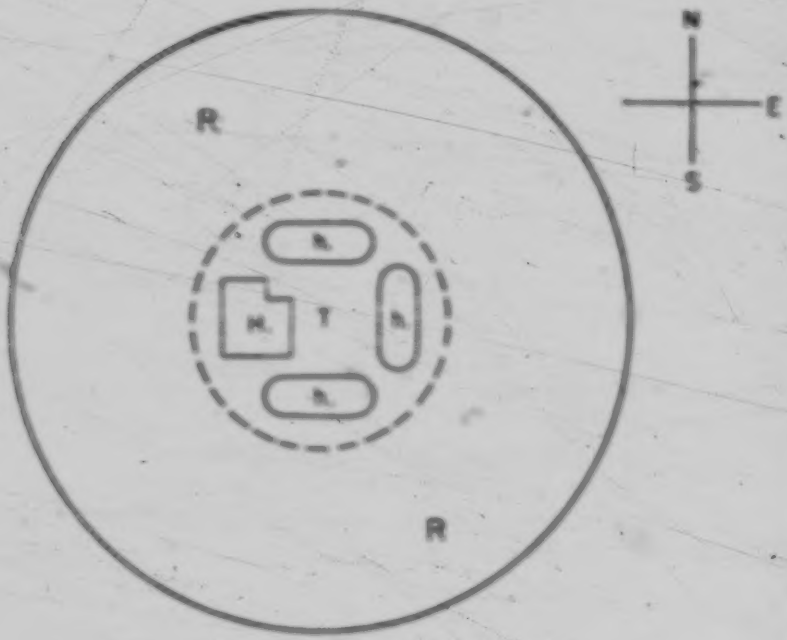

Figure 2. Plan of a Munduruků village
T: plaza; H: hakaa; h: hak-a; R: Garden plots.

/29 cont./

241 to another only occur at long intervals, within decades, and because
361 they occur within a certain well-defined area which is precisely the
166 habitat of the tribe. When these moves overshoot the boundaries of the pertinent territory, the causes must usually be sought in other spheres: in wars, pressure by other tribes, or, as is noted among the present-day Munduruků, in the influences of trade and of rubber gathering. But, in their original and usual sense, these "internal" migrations, that is, these displacements and movements of groups within the area peculiar to the tribe, are based solely on the agrarian conditions mentioned above. Martius had already said of the Tupi of the upper Tapajós, as quoted earlier: "They practice a primitive agriculture, and therefore, they are not nomads in the strict sense of the term; their villages, however, do not remain immutably in the same place." (16) He had, thus, already noted these moves

16. Martius, 1837: 901.

[182] and had recognized the fact that agriculture was responsible for the greater or lesser stability of the Indian within his territory. In fact, the same thing may be said in a concrete way of the Munduruků. They are not nomads, precisely because of their agriculture. But neither are they entirely stable within their habitat for the same reason—agriculture—which, owing to soil exhaustion, forces them into repeated moves which, in the last analysis, result in slow internal migrations which I have termed intra-territorial /sic/.

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241 IV. Native terminology referring to garden plots and cultivated plants
104

1) Referring to the garden. (17)

17. The phonetics have been adapted to Portuguese whenever possible. Note the following, however:

*241 /30 cont./
104

w — as in English.
ü — as in German, but shorter.
c — as the German umlauted "o," but shorter.
t — always dental.
s — always strong.
z — always weak.
Final consonants (as: k - p - t)
are not plosive.
The tonic accent, unless otherwise
noted, is always on the last syllable.

*241
192
[412]

a) Tools:

spade	puruc
iron digging tool	chit
digging stick	ip mararaiwarab ip

b) Garden and garden tasks:

garden (while under the man's care); he says:	kat
garden (while under the woman's care); she says:	ko
to clear the undergrowth	tyup tatabm
to fell (the trees)	yup chigm; yup chichigm
to burn	imapigm
brush	taipa
to pile up the brush	taipa chigm; taipa chichigm
to burn the brush	taipa mapigm
to plant (bitter manioc)	(maxik) tatabm; (maxik) ip mayum
to weed, first cleaning	tip ogm
to weed, second cleaning	karit ogm
to pull up the manioc roots	maxik ta ogm
to replant	warabm ypu mayum; yab; kuom

/31/

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192
[248]

2) Referring to cultivated plants.

cotton (Gossypium)	buru
• large variety /long staple?/	buru chichi
• small variety /short staple?/	buru anan
pineapple (Ananas sativus)	ipara
• large, sour variety	ipara chichi
• field variety	ipara dyõ dyõ
• thornless, sweet variety	ipara biraprap
• small variety	ipara anan
• small, yellow variety	ipara rem
rice (Oryza)	arũra
banana (Musa sapientum)	aku
• São Tomé variety	aku rahẽ chichi; (aku. rohẽ)
• caiena or caiana variety	aku ãnya
• inajá variety	aku an an pa
• purple variety	aku pakpak
• white variety	aku rirrit
banana "white variety	aku ronor; aku rign rign
• "water" or chovena variety	aku ipapan; aku chik pa
• (Musa paradisiaca): pacova variety	aku chichi
• large pacova variety	aku ok piror chichi
• • • •	aku ok piror an
• • • •	aku hi ba boredn pa
sweet potato (Ipomoea batatas)	wechik
potato yellow variety	wechik pakpak
sweet potato purplish variety	wechik tuhtui
• • white •	wechik rirrit
• • (spotted inside)	wechik pirĩ pararab
cacao (Theobroma cacao)	wadye
• domesticated, planted	wadye
• wild (sometimes planted)	wadye buruburu—pa
/32/ • • •	wadye akarap pa
coffee (Coffea)	kape (ũ)

/32 cont./

*241 192

cashew (Anacardium sp.)	murese; muroso
• white variety	murese ririt ta
• red •	murese pakpak hat ta
• field •	murese krau
sugar cane (Saccharum officinarum)	kanya
yam (Dioscorea)	awai; puira
• half-purple, half-white-inside variety	awai kurep (ta)
• darkish variety	awai pugupugu (ta)
• • •	awai ruirui
• black, small variety (/raiza/ mixed with manicuera)	awai tutu
• ("looks like a human hand") variety	awai panatyat
• "large ball" variety	awai puira chik a a
• long, slender, white variety	awai puira bechidn (puira beredn; puira ririt)
• red-inner-coat variety	awai puira ara be pak
• large variety, carí-asu	awai puira
• red variety	awai puira pakpak
• round, red-and-white variety	awai-ta
gourd (Crescentia)	ua e; wa e
curaua pineapple (Bromeliaceae)	ipura be
bean (Phaseolus sp.):	
large	keijãu; wetai
small	wetai anan
common (small with elongated bean)	hadyuš
genipa (Genipa americana)	warem ap (a)
pumpkin (Cucurbita)	yurumu (a)
inga (Inga)	chiriri
jamari gourd (Cucurbita; Lagenaria /32/ vulgaris)	uai a; wai a
orange (Citrus)	yarai ip
lemon (Citrus)	krimão, krimãu, krimão /loc./

/33 cont./

*241 192 sweet manioc (Manihot sp.—palmata?)	makachi
• • white variety	makachi taritat
• • yellow variety	makachi potpot
papaya (Carica papaya)	asĩu a
• purple	asĩu rom rom (asĩu rem rem)
mango (Mangifera indica)	mĩga, mĩka
manicuera (Manihot sp.?)	maso; manikue
• purple-leaf variety	maso
• white-leaf •	maso yubritat
bitter manioc (Manihot utilissima)	masok
• yellow variety	masok pekpek
• purplish-leaf variety	masok tchukumai
• large-leaf variety	masok yairupuyen
• purple-leaf variety (paraíso)	masok paraisu
• white variety	masok tarya ĩm ĩm at
• small-leaf variety	masok anan
watermelon (Citrullus vulgaris)	
red flesh	barĩchi, burĩ-a
• white-flesh variety	barĩchi a bia chep nyen a a
• small variety	barĩchi an an a
• purple-flesh variety	barĩchi rem rem a
maize (Zea mays)	mura, mora
• hard grain	mora tyatya (ta)
/34/ soft grain	mora tya am am (ta); mora hat
peanut (Arachis hypogaea)	wenambese
pepper (Capsicum)	achi (a)
• green pepper variety	achi chichi (a)
• odoriferous variety	achirew
• red-pepper variety	chi kaĩ (a)
• round variety	achi kurekanyen (a)
[276] tobacco (Nicotiana tabacum)	bey e
caladium (Aracea sp.), bush variety, planted	pereit
• dragonwood variety	kurubyubyut
cimbo vine (Paullinia? Serjania?)	ul ok, ul ok paga
urucú (Bixa orellana)	tyuku (a)

221

[For a discussion of the cycle of activities involved in gardening, see category 116, pp. 6-21.]

[For a comprehensive examination of Mundurucu agriculture, see category 116, pp. 1-38.]